

Message

From: Shuster, Kenneth [Shuster.Kenneth@epa.gov]
Sent: 4/18/2017 1:52:57 PM
To: Galbraith, Michael [Galbraith.Michael@epa.gov]; Gaines, Jeff [Gaines.Jeff@epa.gov]; Crosby-Vega, Terri [Crosby-Vega.Terri@epa.gov]
CC: Gerhard, Sasha [Gerhard.Sasha@epa.gov]; Wanslow, Julie [Wanslow.Julie@epa.gov]
Subject: FW: emissions from plastic explosives
Attachments: PETN-DM12-Detonation-Efficiency-DRDC-Valcartier-Thiboutot-2015.pdf

From: Craig, Harry
Sent: Tuesday, April 11, 2017 12:12 PM
To: Walsh, Michael ERDC-RDE-CRREL-NH CIV <Michael.Walsh@erdc.dren.mil>; info@cswab.org
Cc: Shuster, Kenneth <Shuster.Kenneth@epa.gov>
Subject: RE: emissions from plastic explosives

Laura,

Here is the work by the Canadians on a "greener" demolition explosive that C-4 RDX. PETN degrades faster, is less mobile, and has lower toxicity than RDX in addition to all the explosive properties Mike listed below.

Harry

From: Walsh, Michael ERDC-RDE-CRREL-NH CIV [<mailto:Michael.Walsh@erdc.dren.mil>]
Sent: Tuesday, April 11, 2017 6:41 AM
To: Craig, Harry <Craig.Harry@epa.gov>; info@cswab.org
Cc: Shuster, Kenneth <Shuster.Kenneth@epa.gov>
Subject: Re: emissions from plastic explosives

Hi, Harry;
Just back from AL. Some of the worst contaminated areas we have sampled are OB/OD areas. Part of the problem is the detonation of unconfined explosives, such as blocks of C4 (demolitions blocks). We have often found kilograms of C4 on these sites, including full blocks of C4, as well as partially detonated munitions and especially "blown up" propellants. Propellants do not blow up in an OB/OD scenario. EOD is still doing this: They did it with excess propellant from our field tests this winter. I could go on with this, but you get the idea. The Army may be moving towards a PETN-based demolition block in the future. It detonates cleaner, has slightly better explosive properties, and works much better in the cold. The Europeans are using it and the Canadians are moving towards it.

Mike

Michael R. Walsh, PE
Research Engineer (GS-15)
USA CRREL
72 Lyme Road
Hanover, NH 03755 USA

Michael.Walsh@usace.army.mil
Personal Phone / Ex. 6 (Mobile)
+1 (603) 646-4363 (Office)

From: "Craig, Harry" <Craig.Harry@epa.gov>

Date: Thursday, March 30, 2017 at 3:22 PM

To: "info@cswab.org" <info@cswab.org>

Cc: "Shuster, Kenneth" <Shuster.Kenneth@epa.gov>, Michael Walsh <michael.walsh@erdc.dren.mil>

Subject: RE: emissions from plastic explosives

Laura,

PBXs are basically RDX or HMX with less than about a 10% plastic binder, such as estane, HTPB, or CTPB. PETN is also occasionally used in PBXs. DOE uses PBXs, usually containing RDX, HMX or PETN. One of the more common PBXs used by DOD is C-4 which is 91% RDX and polyisobutylene binder. C-4 is the standard military donor charge and used for demolition operations. One of the bigger sources of RDX groundwater contamination at OB/OD units is use of C-4 as a donor charge in addition to the RDX in the explosive itself such as Comp B (TNT/RDX mix).

If detonations go high order, then the amount of residue is fairly small. If the detonations go low order it is very "dirty" and can expel as much as 50% of the explosives out as bulk explosives or "chunks". OB/OD units may be a mix of both low order and high order detonations. In addition buried detonations, while reducing blast and fragmentation effects, may also tend to reduce combustion efficiency of the explosives and increase entrainment in the soils.

Here are a couple of examples on the research on residue effects.

Mike: Any major points I might have missed?

Regards,

Harry

From: Laura Olah [<mailto:info@cswab.org>]

Sent: Thursday, March 30, 2017 8:49 AM

To: Craig, Harry <Craig.Harry@epa.gov>

Subject: emissions from plastic explosives

Hi Harry, Holston Army Ammunition Plant reports than plastic bonded explosives (PBXs) are part of the current OB/OD waste stream. Does EPA have any studies or records characterizing emissions for PBXs? Laura

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Laura Olah, Executive Director
Citizens for Safe Water Around Badger (CSWAB)
Coordinator, Cease Fire Campaign
E12629 Weigand's Bay S, Merrimac, WI 53561
(608)643-3124
info@cswab.org
www.cswab.org
www.twitter.com/CSWAB
www.facebook.com/cswab.org
<http://cswab.org/resources/cease-fire-campaign>
<http://www.facebook.com/ceasefirecampaign/>

No effort, no matter how small is wasted when it is in the service of a clean and just world.

